REPLACEMENT SHEET
Title: Matched Instruction Set Processor Systems and Method, System and Apparatus to
Efficiently Design and Implement Matched Instruction Set Processor Systems by Mapping
System Designs to Re-Configurable Hardware Platforms
1st Named Inventor: Hussein S. El-Ghoroury
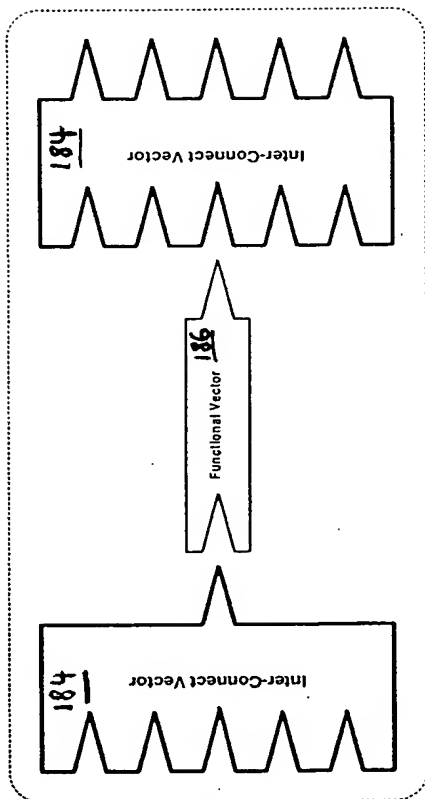Application No.: 10/074,455   Docket No.: 5444P004
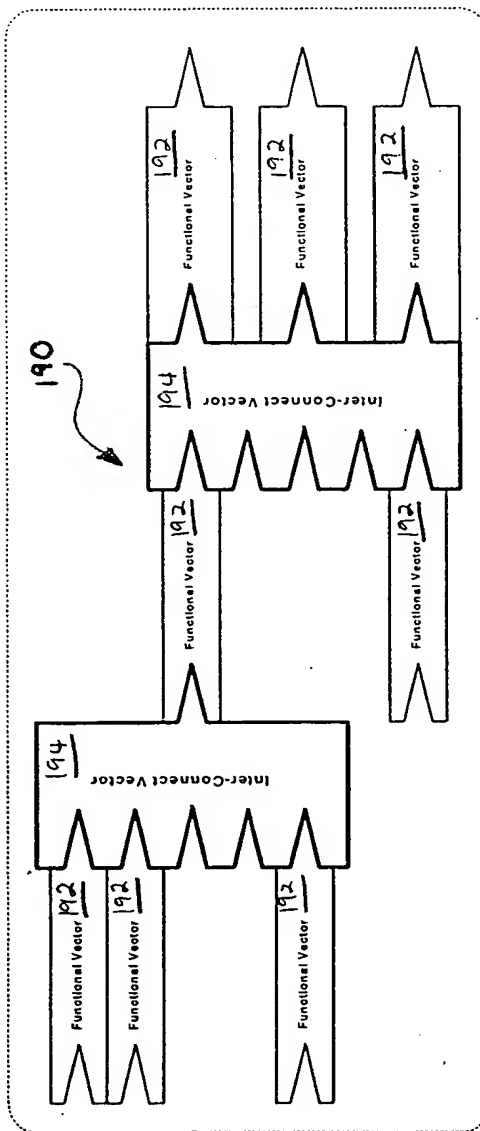Sheet: 1/9

Figure 1A

Figure 1B

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Figure 2

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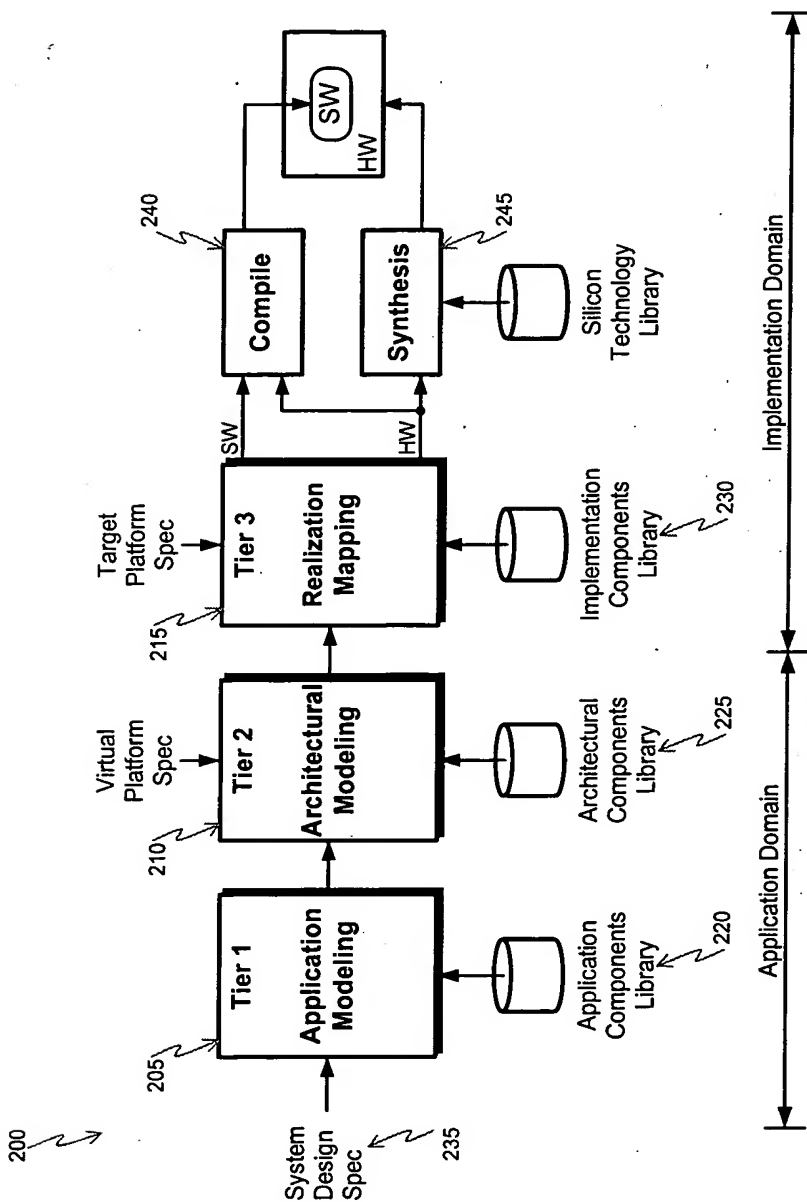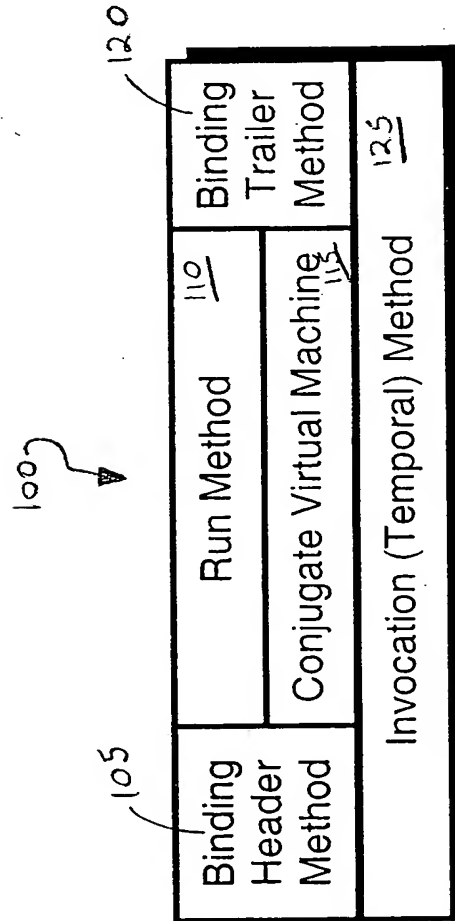Sheet: 3/9

Figure 3A

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130

```
/** Vector Attributes */
string vectorName;      ~135
string vectorType;      ~140
string parentAS;        ~145
```

Figure 3B

150

```
/** Header variables */
// Add input variable declarations
Object headerVar[];     155
/** Trailer variables */
// Add output variable declarations
Object trailerVar[];    160
```

Figure 3C

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170

172

```
/** Vector Constructor Method: Construct an actor with the given vector name */
 public udmVectorClassName (string vectorName, udmVector inVector[], udmVector
outVector[])
    {   // Call constructor in base class
        super(vectorName, parentAS, inVector, outVector);
        // Perform any initialization that needs to be done in the constructor
    }


    /** This method contains the actual behavior of the vector   */
    private boolean vectorRun()          174
    {
        // Perform the vector processing
        return true;   // (or false if you want to terminate the thread)
    }


    /** This is the invocation method that checks to see if the vector is ready to run */
    private void vectorInvocation()          176
    {
        while ( !headerDataReady() ) vectorWait();
    }


    /** Get the header input data */
    private void getHeaderInput()          178
    {
        // Get input data from interconnect vector
        headerData = vectorGet();
    }


    /** Send the trailer output data   */
    private void sendTrailerOutput()          180
    {
        // Send output data to the interconnect vector
        vectorSend( trailerData );
    }


    /** run is the method that is started by Java when the thread is started */
    public void run()          182
    {
        boolean runThread = true;

        // Initialize the vector
        initialize();
        while ( runThread )
        {
            // Call invocation method
            vectorInvocation();

            // Get input data
            getHeaderInput();

            // Do the processing for the vector
            runThread = vectorRun();

            // Send output data
            sendTrailerOutput();
        }

        // Perform final cleanup before vector thread exits
        wrapup();
    }
```

Figure 3D

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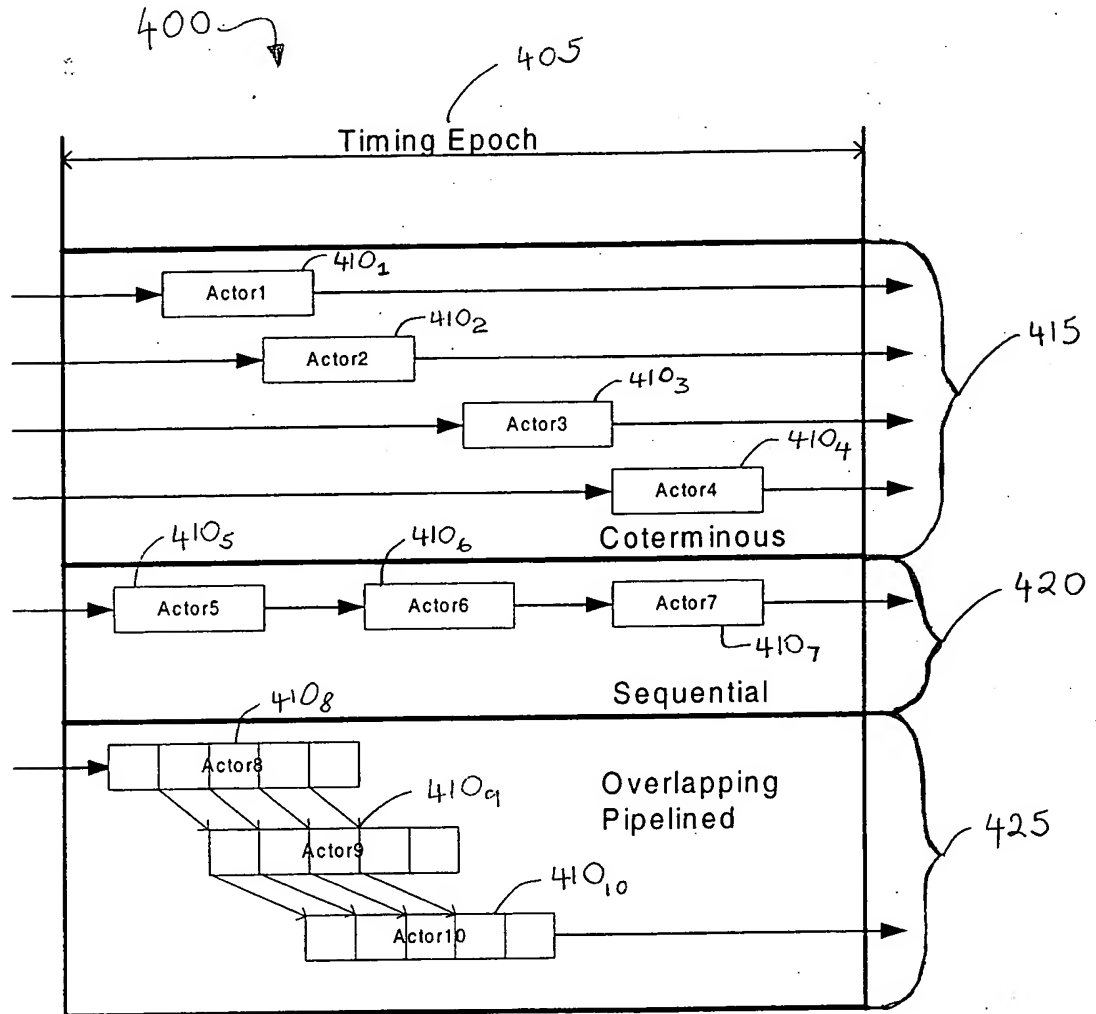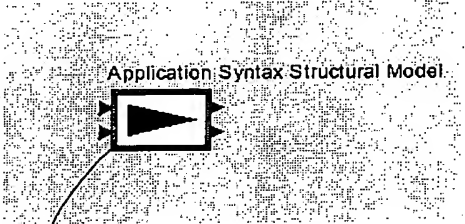Sheet: 6/9

400

405

Timing Epoch

410_1

Actor1

410_2

Actor2

410_3

Actor3

410_4

Actor4

Coterminous

415

410_5

410_6

Actor5

Actor6

Actor7

410_7

Sequential

420

410_8

Actor8

410_9

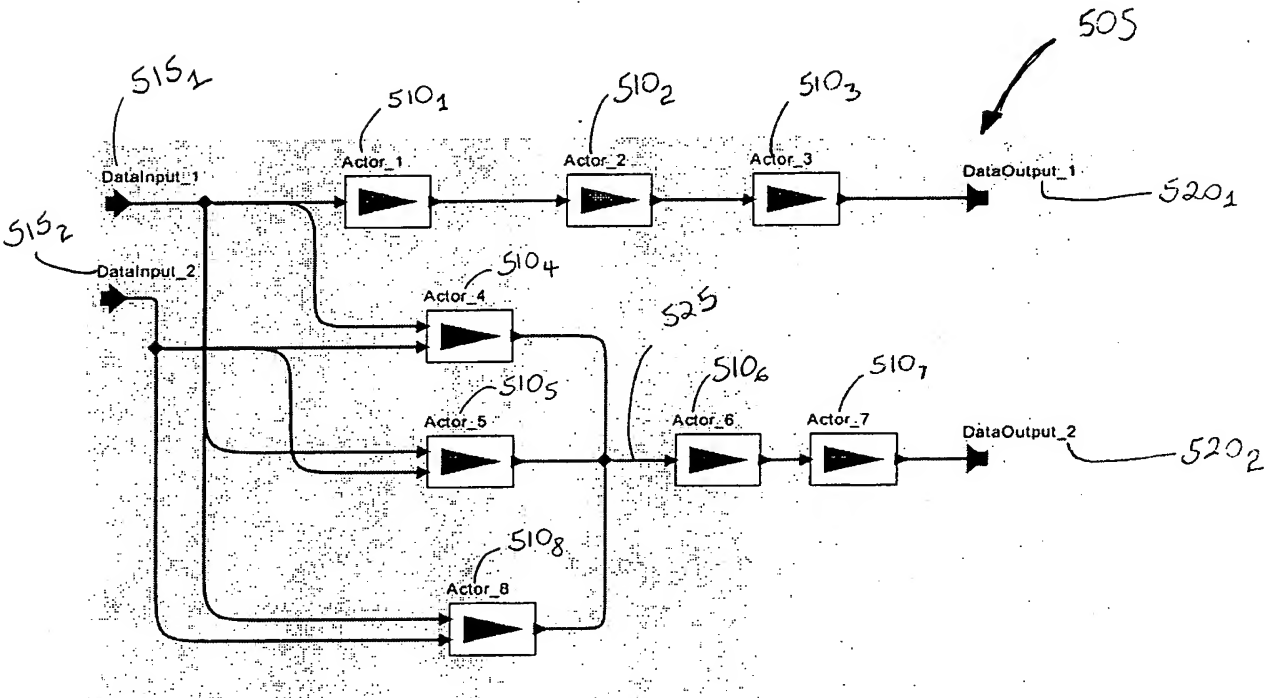Actor9

Overlapping
Pipelined

410_{10}

Actor10

425

Figure 4

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Figure 5A

Figure 5B

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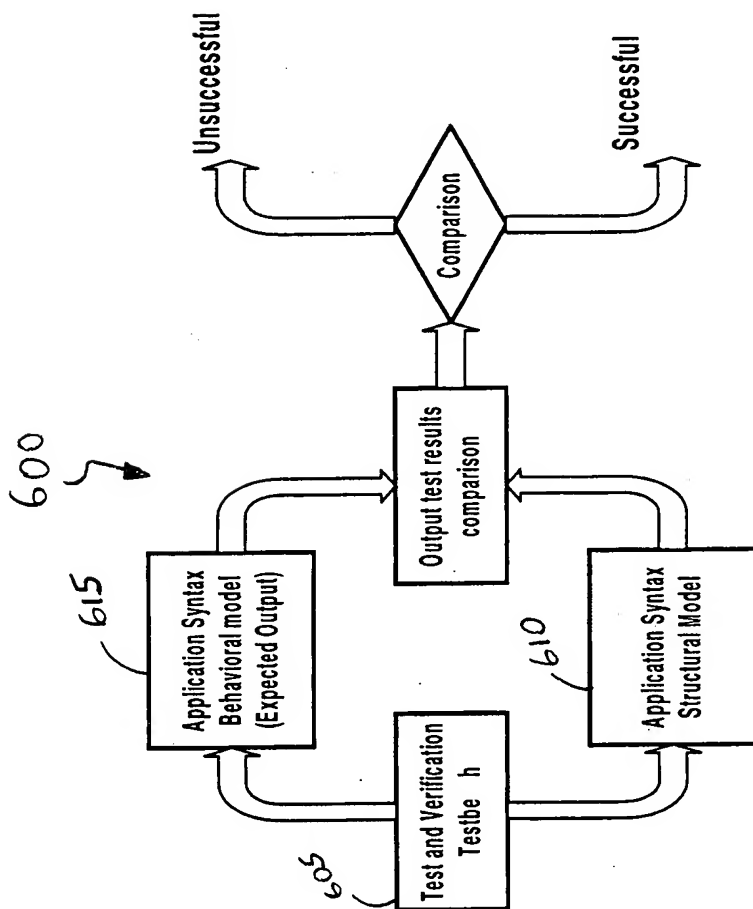Sheet: 8/9

Figure 6

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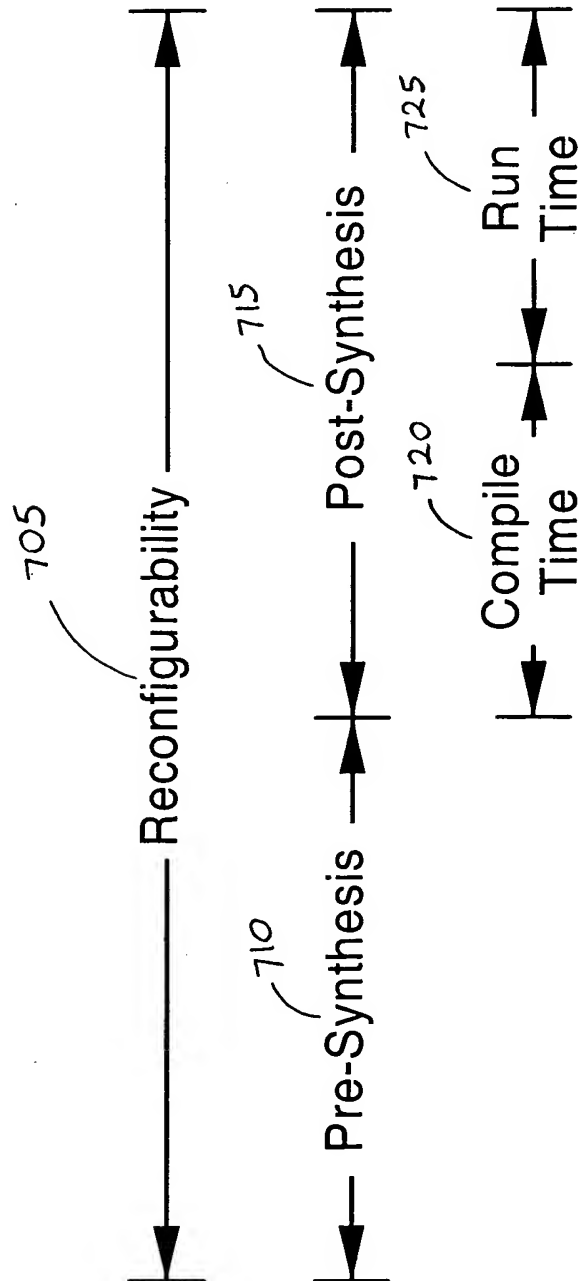Sheet: 9/9

Figure 7